

Applicant : Vincent P. Stanton, Jr.
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- (a) nucleotide 120 of SEQ ID NO:1 wherein T is replaced by C;
- (b) nucleotide 464 of SEQ ID NO:1 wherein T is replaced by G;
- (c) nucleotide 519 of SEQ ID NO:1 wherein C is replaced by T;
- (d) nucleotide 668 of SEQ ID NO:1 wherein C is replaced by T;
- (e) nucleotide 1059 of SEQ ID NO:1 wherein T is replaced by C;
- (f) nucleotide 1289 of SEQ ID NO:1 wherein C is replaced by A;
- (g) nucleotide 1308 of SEQ ID NO:1 wherein T is replaced by C; and
- (h) nucleotide 1784 of SEQ ID NO:1 wherein G is replaced by A;

or the complement thereof.

183. (Amended) An isolated nucleic acid probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:1 (methylenetetrahydrofolate reductase), the probe comprising at least two of:

- (a) nucleotide 120 of SEQ ID NO:1 wherein T is replaced by C;
- (b) nucleotide 464 of SEQ ID NO:1 wherein T is replaced by G;
- (c) nucleotide 519 of SEQ ID NO:1 wherein C is replaced by T;
- (d) nucleotide 668 of SEQ ID NO:1 wherein C is replaced by T;
- (e) nucleotide 1059 of SEQ ID NO:1 wherein T is replaced by C;
- (f) nucleotide 1289 of SEQ ID NO:1 wherein C is replaced by A;
- (g) nucleotide 1308 of SEQ ID NO:1 wherein T is replaced by C; and
- (h) nucleotide 1784 of SEQ ID NO:1 wherein G is replaced by A;

or the complement thereof.

184. (Amended) The probe of claim 182 or 183 comprising no more than 500 contiguous nucleotides of SEQ ID NO:1.

185. (Amended) The probe of claim 182 or 183 comprising no more than 200 contiguous nucleotides of SEQ ID NO:1.

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186. (Amended) The probe of claim 182 or 183 comprising no more than 100 contiguous nucleotides of SEQ ID NO:1.

187. (Amended) The probe of claim 182 or 183 comprising no more than 50 contiguous nucleotides of SEQ ID NO:1.

188. (Reiterated) The probe of claim 182 or 183 comprising DNA.

189. (Reiterated) The probe of claim 182 or 183 comprising a peptide nucleic acid.

190. (Reiterated) The probe of claim 182 or 183 further comprising a detectable label.

191. (Reiterated) The probe of claim 190 wherein the detectable label is a fluorescent label.

192. (Amended) A method comprising:

(a) providing a test sample comprising nucleic acid molecules present in a biological sample obtained from an individual;

(b) contacting the test sample with a probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:1, the probe comprising at least one of:

- (i) nucleotide 120 of SEQ ID NO:1 wherein T is replaced by C;
- (ii) nucleotide 464 of SEQ ID NO:1 wherein T is replaced by G;
- (iii) nucleotide 519 of SEQ ID NO:1 wherein C is replaced by T;
- (iv) nucleotide 668 of SEQ ID NO:1 wherein C is replaced by T;
- (v) nucleotide 1059 of SEQ ID NO:1 wherein T is replaced by C;
- (vi) nucleotide 1289 of SEQ ID NO:1 wherein C is replaced by A;
- (vii) nucleotide 1308 of SEQ ID NO:1 wherein T is replaced by C; and
- (viii) nucleotide 1784 of SEQ ID NO:1 wherein G is replaced by A;

or the complement thereof; and

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(c) determining if the test sample comprises a nucleic acid molecule that hybridizes to the probe.

193. (Amended) A method comprising:

(a) providing a test sample comprising nucleic acid molecules present in a biological sample obtained from an individual;

(b) contacting the test sample with a probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:1, the probe comprising at least two of:

- (i) nucleotide 120 of SEQ ID NO:1 wherein T is replaced by C;
- (ii) nucleotide 464 of SEQ ID NO:1 wherein T is replaced by G;
- (iii) nucleotide 519 of SEQ ID NO:1 wherein C is replaced by T;
- (iv) nucleotide 668 of SEQ ID NO:1 wherein C is replaced by T;
- (v) nucleotide 1059 of SEQ ID NO:1 wherein T is replaced by C;
- (vi) nucleotide 1289 of SEQ ID NO:1 wherein C is replaced by A;
- (vii) nucleotide 1308 of SEQ ID NO:1 wherein T is replaced by C; and
- (viii) nucleotide 1784 of SEQ ID NO:1 wherein G is replaced by A;

or the complement thereof; and

(c) determining if the test sample comprises a nucleic acid molecule that hybridizes to the probe.

194. (Amended) The method of claim 192 or 193 wherein the probe comprises no more than 500 contiguous nucleotides of SEQ ID NO:1.

195. (Amended) The method of claim 192 or 193 wherein the probe comprises no more than 200 contiguous nucleotides of SEQ ID NO:1.

196. (Amended) The method of claim 192 or 193 wherein the probe comprises no more than 100 contiguous nucleotides of SEQ ID NO:1.

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E3 197. (Amended) The method of claim 192 or 193 wherein the probe comprises no more than 50 contiguous nucleotides of SEQ ID NO:1.

198. (Reiterated) The method of claim 192 or 193 wherein the probe is a DNA probe.

199. (Reiterated) The method of claim 192 or 193 wherein the probe is a peptide nucleic acid probe.

200. (Reiterated) The method of claim 192 or 193 wherein the probe comprises a detectable label.

201. (Reiterated) The method of claim 200 wherein the detectable label is a fluorescent label.